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CARVER & GILDER



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CARVER AND GILDER.

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## THE CARVER AND GILDER.

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IN walking through the streets of a trading town or city, we frequently see several trades connected in the announcements of a shopkeeper, which, if judged by the nature of the processes which constitute those trades, would seem to have very little connexion with one another, and only one of which may be actually carried on by the individual who owns the shop. In general, however, it will be found, on a little consideration, that there is some bond of connexion between the several branches, which renders it desirable that they should, to a certain extent, be undertaken by the same individual.

We are led to make these remarks by the nature of the business to which this "Guide" is devoted. *Carving* and *Gilding* are, when considered without reference to their dependence upon one another, employments altogether different in their nature; requiring different tools, different kinds of talent in the workman, and different materials to work upon. The Carver and Gilder sometimes, also, designates himself "Plate Glass Manufacturer;" whereas, this is a separate and most important and delicate branch of art. The Carver and Gilder purchases his plates of glass properly made and polished, and of such dimensions as may be required for the purpose he has in view,—whether for a chimney-glass, a pier-glass, or

(in the transparent state) as a glass for a large print or drawing. These he purchases in the transparent or unsilvered state, like the glass for windows, and has them converted into looking-glasses by the process of *silvering*, which is either effected in his own shop, or by one who devotes himself entirely to the business of silvering; for this, likewise, is a separate branch.

Again: the ornaments with which picture and glass frames are enriched, are, in most cases, made of a species of composition, and are the production of another branch of business, viz. the "Composition Ornament Maker." Even the frame itself is not made by the carver and gilder; for he is supplied with the wood-work of the frame, properly shaped and planed, before his portion of the work commences at all.

The subdivision of trades is not yet complete. If we have a gilt frame to a looking-glass on the mantel-piece, and also a mahogany frame to a dressing-glass in the bed-room, we might suppose that those two frames are made by the same workman. But such is not the case; those two frames are made by persons carrying on entirely separate employments: the joiner or carpenter who makes the frame which is afterwards to be gilt, is not the same workman who makes the mahogany frame of the dressing-glass. There is not one dressing-glass frame in a hundred that is made by the joiner who produces the frame to a chimney-glass or to a picture; in fact, it is a separate business, and is carried on by persons who do scarcely any thing else.

One more instance remains to be stated in illustration of our opening remark. The composition of which the ornaments for picture frames are generally made, is very heavy, and, at the same time, very brittle, so as to be easily fractured by a blow. To get rid of these two inconveniences, a process was

devised a few years ago, by which *papier machée* could be pressed into moulds, and thus formed into ornaments which should possess the twofold properties of lightness and toughness. *Papier machée* is the French name for a kind of pulp which is made of paper, and which is moulded into various forms while in a soft state. In Paris, snuff-boxes and articles of various kinds are made of *papier machée* in immense quantities. In England, the making of *papier-machée* ornaments is a separate and distinct branch of employment.

Now for the point to which these details lead us. From what has been stated, it follows that when a youth is apprenticed to a Carver and Gilder, he must not expect to be instructed in the art of making all the different kinds of frames, glasses, and ornaments, which adorn the carver and gilder's shop; since there is not one master tradesman in London who manufactures the whole of them. It would be well, under such circumstances, if parents and guardians were, previously to the apprenticing of a youth, to ascertain how many of the branches which we have been enumerating are really carried on in the establishment. Some gilders employ carvers in their own workshops; but an apprentice would not be taught carving as well as gilding, unless an express agreement were entered into to that effect; indeed, but few gilders are qualified to teach the art of carving, on account of the two trades being so very dissimilar. Some gilders manufacture their composition ornaments in their own shops; and, in such cases, it is not improbable that an apprentice would learn that part of the business as well as gilding; for, when the tools and moulds are once provided, the making of ornaments is a simple and easy process. We have known instances in which silvering and gilding have been carried on in the same firm, and an apprentice has

been alternately engaged at each; but this is an exception to the general rule. It must be here borne in mind, that when we speak of silvering, we mean the silvering, or rather quicksilvering, of looking-glasses, and not the silvering of frames,—a process which is sometimes done, and which comes under the hand of the gilder.

It therefore appears that the following trades, which are by some persons supposed to be combined in the shop of a carver and gilder, are separate branches of business, and are, generally speaking, carried on by separate persons:—Glass Making, Silvering, Joining, Mahogany Frame Making, Carving, Composition Ornament Making, *Papier-machée* Ornament Making, and Gilding. Still there is a certain bond of connexion between them, and it remains for us to decide how many to treat of in this place. Were we to devote a separate “Guide” to every distinct branch of British manufacture, the series would be almost interminable, and very unequal in importance. A system of classification, therefore, will be observed, in which two or more trades will occasionally be combined in one “Guide,” either on account of the raw material being the same in all, or from a mutual dependence one on another. In the present case, we shall treat of Gilding, Silvering, Mahogany Frame Making, and Composition and *Papier-machée* Ornament Making, in sufficient detail to preclude the necessity of devoting other “Guides” to them: Carving, and Joining or Frame Making, will be considered so far as the gilder is dependent on them; and Glass Making will be merely glanced at, sufficient to give a rough idea of the material on which the silverer is employed.

## PLATE GLASS.

Chimney-glasses, pier-glasses, and the better sort of dressing-glasses, are made of *plate* glass, which is perfectly free from wrinkles, and is as flat as an artificial surface can be made; so that the face of an observer, when reflected from it (or rather from the coating of mercury behind it), appears well defined, having the proper form, and in no respect distorted or crooked. But common dressing-glasses, such as those which are called *shaving*-glasses, are frequently made of an inferior kind of glass, which is by no means flat, and which gives a very crooked and disagreeable appearance to the reflected image of the face,—a circumstance which renders this kind of glass sadly out of favour with those whose good looks are deemed by them a matter of importance; the glass is, in fact, common window glass. There is a third kind of glass, intermediate between these two, called *Dutch plate*: this is as thin as window glass, but nearly as flat as the best plate glass, and is tolerably free from wrinkles. It is imported from Holland; but as a customs' duty is paid on its importation into this country, the quantity employed is but small, it being generally devoted to those kinds of purposes in which very small pieces of silvered glass are required.

The establishments in which glass is made are among the largest manufactories in England. There is a plate glass manufactory at Ravenhead, in Lancashire, in which there is one room 339 feet long by 155 feet wide, and of a proportionate height,—and which is considered to be the largest room under one roof in the kingdom, being considerably larger than Westminster Hall. A few words on the mode of manufacture is all we can give in this place

Plate glass is made of *sea-sand* and *soda*, in the proportion of about four parts of the former to one of the latter; quicklime and nitre, in small quantities; and if any *cullet*, or broken glass, is at hand, that is added to the other ingredients. Sea-sand is almost the same in substance as the flint with which we strike a light; indeed, ground flint is sometimes employed instead of sand. The soda is obtained from common table salt, which contains a large proportion of that substance. The quicklime is employed for the purpose of enabling the other ingredients to melt more easily, and is on this account called a *flux*. As the ingredients are all more or less coloured in their natural state, it is found necessary to add some substances which shall destroy these colours, and the materials employed for that purpose are generally *cobalt* and *manganese*.

These several ingredients are melted in earthen pots by the application of a fierce heat, and the melted liquid is poured on a flat metallic table, where, after undergoing different processes, it cools into a thin sheet of glass. This sheet, when it has been ground and polished, is presented to us in the form of plate glass.

*Crown* glass, for common dressing-glasses and for prints and drawings, is made of nearly the same ingredients as plate glass; but, instead of being poured on a casting table, the liquid glass is taken up on the end of a tube, and blown into the form of a hollow globe by the workman breathing through the tube; which globe, by a most remarkable process, is expanded to a circular sheet of thin glass. This circular sheet, when cut into two pieces with a diamond, is called a *table*; and a number of such tables are packed in wooden crates with straw, and in that state are sent to the warehouses, from whence the carver

and gilder, as well as other manufacturers, are supplied.

In the plate glass warehouses, the plates of glass are set up edgeways, one resting against another, with small pieces of paper between them, to prevent friction of the contiguous surfaces. When a plate is to be cut to a given size, it is laid down horizontally on a table, and a diamond set in a handle is drawn along the surface with the straight edge of a lath as a guide. This makes a slight cut along the glass, and by laying hold of the glass on each side of that cut, it can be made to break in that direction.

In every kind of manufacture which is sold by "long measure," that is, so much for a yard or foot in length, the price per yard or foot applies to any number of yards or feet, whether one or more, except that the seller frequently allows a discount when more than one be purchased: this is the nature of the measure with cloth, ribbon, &c. But when an article is sold by "square measure,"—the superficial foot, for instance,—the price per foot frequently varies according to the number of feet contained in the piece which is purchased. This is the case, to a very remarkable extent, with plate glass. The length and the breadth of a plate of glass are multiplied together to determine how many square feet are contained in it: if that number be small, the price per foot is small; but if large, the price per foot is large also. Some of the very large glasses of modern times are worth from three to four guineas per square foot, while very small ones are charged only at the rate of a few shillings the square foot, and yet the quality of the glass is the same in both cases. The difficulty of procuring very large plates perfectly free from blemish, is one reason of this disparity of price; and another is, that if a large glass be broken, it can still be cut into smaller

squares, which the maker is willing to sell at a lower average.

These few remarks on plate glass will prepare us to enter upon the occupation of the Silverer

#### SILVERING.

A piece of glass, such as we have just described, is transparent, and is not calculated to act as a looking-glass, because the reflection of the face or of any other object from it is too faint to answer the desired purpose. If we blacken the back of a piece of glass, or hold a dark object immediately behind it, the reflection becomes more distinct, but is still altogether insufficient for the purposes to which a looking-glass is applied. It is necessary, therefore, to cover one side of the glass with some metallic substance which will yield a good reflection through the glass.

Many persons suppose that the metal employed for this purpose is *silver*; indeed, they are justified in so supposing, from the name which the silverer gives to his employment. The metal employed is, however, Mercury, or Quicksilver; this latter name, which means "living silver," was given to this metal by the ancients, probably on account of the lively and vivid appearance which it presents; and as "silver" is a shorter word to pronounce than "quicksilver," it is probable that this is the reason why the process of which we are speaking is always called *silvering*.

Mercury being a liquid, it is necessary to employ some other substance to cause it to adhere to the glass; for it would not be sufficient to lay it on with a brush, as we should whitewash on the ceiling, or paint on the wall, of a room, and there let it dry; mercury rolls off glass as drops of water do off a greasy board. The substance employed to make the mercury

adhere to the surface of the glass is *tin-foil*, which is as thin as paper, and which has, to use a chemical term, a strong attraction for mercury; the effect of which is, that a drop of mercury combines with, or is absorbed by, the tin-foil, and they both become one substance, which adheres pretty firmly to glass.

The various processes which the silverer performs to attain this object we now proceed to detail.

The glass which is to be silvered is made perfectly clean on both sides, particularly on that which is to be silvered; for if the slightest mist or speck of dirt be allowed to remain on the surface, it will appear very conspicuous when the glass is silvered. The tin-foil, which is the next object of attention, is generally made in sheets about six feet long and of various widths, varying from ten inches up to forty, the diversity of widths being to enable the silverer to cut out small pieces suitable to various sized glasses. For larger sizes, the foil is generally made to order, and of a greater thickness than for smaller glasses.

A sheet of tin-foil being unrolled, is laid down flat, and cut to the same shape as the glass, but an inch larger each way. It is then laid down as smoothly as possible on the *silvering-stone*, which is a very large and carefully-prepared slab of slate, porphyry, or marble, perfectly flat and smooth. The foil is worked out level and smooth on the silvering-stone by means of a smooth wooden roller, which is worked over it in every direction.

The mercury employed, whether for this or any other manufacturing process, is brought to this country either from Almaden, in Spain, or from Istria, in the Austrian empire, at both of which places quicksilver mines are situated. The metal is contained in a mineral called cinnabar, with which Almaden, in particular, abounds. There are at Almaden twelve large ovens, each capable of containing about ten tons of

cinnabar; and by heating and subsequent processes, from three to ten ounces of mercury are obtained from every pound of the ore or cinnabar dug from the mine. The mercury is put into tall narrow iron bottles, each capable of containing about 100 lbs. weight, and in that form it is shipped off to foreign countries.

The silverer, when all is ready for silvering a glass, pours some mercury from one of the iron bottles into a wooden bowl, and then, by means of an iron ladle, pours the mercury over the whole surface of the foil till every part is covered. The glass plate is then laid upon the liquid mercury; but this operation is done in a very remarkable manner. The glass is not laid at once flat down on the mercury, but is made to slide on, the edge of the glass first coming in contact with the mercury. As it is slid along, it pushes before it the greater part of the mercury, because the edge of the glass almost scrapes along the foil as it passes. The reason of this mode of placing the glass on the foil is, that all air-bubbles and impurities may be pushed off, allowing only a thin film of very pure mercury to remain between the glass and the foil.

In all of this there is much care and delicacy required. In the first place, it is a matter of some difficulty to clean the glass so perfectly as not to shew any marks or streaks after it is silvered; indeed, it is often necessary to remove it from the foil two or three times after it has been laid down, in order to wipe off specks of dirt which are visible when the glass is silvered, however difficult of detection they may previously be: this is especially the case in damp weather. This renders it necessary that the foils for large glasses (which necessarily require a longer time than small ones to perform the different processes) should be thicker than those for smaller; for such is the attraction between the mercury and the foil, that if a glass, after having been removed for farther cleaning,

be not speedily replaced on the mercury, the latter will combine with the foil, and give it a rottenness which will prevent its adhesion to the glass: the thicker the foil, therefore, the less is this likely to occur.

Another point of great importance is, that the plate should be so dexterously slid over the surface of the foil as to remove all air-bubbles in its progress, and is one of those instances in which a description of the process, although it may explain *how* it is done, will go but a little way in qualifying the reader to perform it.

When the glass is properly placed on the tin-foil, and it is ascertained that all specks and air-bubbles are removed, it is covered almost in every part by heavy iron or leaden weights; so that a large glass will have several hundred weight pressing upon it. It may, and often does, excite surprise that such a pressure does not break the glass; but that it does not do so is a sufficient proof how perfectly flat both the glass and the silvering-stone must be. This pressure is intended to force out from between the glass and the foil as much mercury as possible, so that the thinnest film only of mercury shall remain between them. To effect this more completely, the silvering-stone is made to rest on a swivel or axle underneath, by which it can be made either perfectly horizontal, or thrown into an inclined position. While the glass is being laid on the foil, the silvering-stone is horizontal, to prevent the mercury from flowing off; but when the superfluous mercury is to be drained off, the stone is made to assume an inclined position, so as to ensure one general direction for the flow of the mercury.

A trough or hollow groove runs round the sides of the stone, into which the mercury flows as it is forced out from between the glass and the foil. A pipe,

descending from one corner of this trough, conveys the mercury into a bottle placed beneath to receive it. Although an immense weight of mercury (which is about thirteen or fourteen times as heavy as water) must be poured on the foil for the silvering of a large glass, yet the quantity which actually remains between the glass and the foil is extremely small.

The glass, with the weights upon it, is allowed to remain in the inclined position for several hours, or, if the glass be large, it is allowed to remain until the next day, in order that as much as possible of the mercury may be pressed out before the weights are removed. On the removal of the weights, one end of the glass is tilted up and supported by blocks, the other end still remaining on the stone. A piece of foil is then laid on the lowest corner, to draw off the mercury (somewhat in the manner of a sponge) which collects in a little pool at the bottom of the glass. In this state the glass remains from a few hours to three or four days, according to its size.

When as much of the mercury as possible has drained from the glass in this way, the glass is taken up;—when it is found, that the mercury and the foil adhere to each other and also to the glass:—the fact is, that the two metals have combined together, and in the combined state adhere to the glass, which neither the one nor the other would have done separately. Any combination of mercury with another metal, however produced, is called, in chemical language, an *amalgam*; in the present case, we have an amalgam of tin, due to the combination of the mercury with the tin-foil.

The removal of the glass from the stone is effected in different ways, according to its size. If it is not too wide for the arm-span of the silverer, he takes it by the two edges and lifts it up from the stone, from whence he places it edgeways on a shelf or on the

floor of the silvering room, resting its upper edge against the wall, and allowing one corner to be lower than the rest, so as to facilitate the draining towards that corner. If the glass be long and narrow, two men can take it up instead of one, but in the same manner. If however the glass be very large, the following mode is sometimes adopted. The draining room is situated beneath the silvering room, and an opening in the floor of the latter is so situated, that a portion of the silvering table can be let down through it, on account of its facility of motion round the swivel. By a gradual turning of the silvering table, therefore, the stone, and the glass which is upon it, can be brought into a nearly perpendicular position. In this position of the glass (which sometimes weighs as much as 200 lbs.), several men in the lower room grasp it by the edges, and place it against the wall of the room, where it is left to drain.

When the plate is thus placed against the wall of the room, it is left to drain for a time, varying from one day to several days, according to its size; in order that any remaining superfluous mercury may leave it, and that the foil may become still better attached to the surface of the glass. When the draining appears to be complete, the glass is ready to be applied to its intended purpose.

The above is the process for silvering plate glass. But there is an important reason why common glass, used for cheaper purposes (such as the inferior sort of dressing-glasses), cannot be silvered in this way; for any heavy pressure on such glass breaks it at once, on account of its thinness and crookedness. These common glasses (which are always small in size) are not silvered on a stone, but on a board or flat box. The foil, which is thinner for these purposes, is cut to the requisite size, and laid on the board and covered with mercury, as in the former

instance. But instead of sliding the glass on the mercury, a piece of clean paper is laid on the mercury, and the glass is laid on the paper. The silverer now, laying one hand pretty firmly on the glass, lays hold of the edge of the paper with the other, and by a smart dexterous action, draws out the paper from between the glass and the foil, and with it the greater part of the mercury, together with air-bubbles, impurities, &c.,—leaving the glass resting on a thin but brilliant film of mercury: this is a process requiring much manual dexterity, and yet an Italian (for most of the silverers of common glasses are Italians) can often silver a hundred dozen small glasses in one day.

The common glass employed for these purposes is always crooked and irregularly bent at its surfaces: and it is a general rule to silver the concave side, when one side is, generally speaking, more concave than the other. The crown glass now made is better than that which was produced a few years ago, and although it is always curved, yet the curvature is pretty nearly the same in different tables from the same crate. This circumstance assists the silverer, for each silvered glass acts as a weight to another of the same size. It is usual to silver a great many of the same size at the same time; and as each one is silvered, it is placed flat down on a shelf, or in a shallow box; and on it the others are successively laid as they are silvered. The concave side of each is silvered, and as the concavity is nearly equal in all, each one helps to press out the superfluous mercury from the one beneath it. This therefore is, in some degree, equivalent to the leaden weights employed with plate glass. The silvering in common glasses is, however, seldom found to be so perfect as on plate glass, from the impossibility of giving equal pressure in every part.

We sometimes see the bottom edge of a chimney-

glass disfigured by a white, frost-like appearance, extending all along the bottom of the glass, and about an inch or two in depth. This is occasioned by turning the glass upside down before it is perfectly drained of the mercury. When a glass has been silvered, it dries sufficiently for use in a few days,—more rapidly in summer than in winter; but the mercury still continues to drain, in very small quantities, for several months after it has been silvered; and if, during this time, the glass be turned upside down,—or even on one side,—the undrained mercury, in attempting to drain in an opposite direction to that which it had before followed, disturbs that portion of the mercury which had become nearly hardened, and gives it the frosty, powdery appearance which so often disfigures a looking-glass. A silvered glass should, if possible, be fixed up in a room in the same position (as to top and bottom, &c.) in which it had been placed in the draining shelf in the silverer's shop. No circumstance leads more frequently to this disfigurement of a looking-glass than the careless removal of furniture incident to a change of residence. There is no remedy for this injury, but re-silvering the glass.

When a looking-glass is fixed up in a room of which the walls are damp, the back of the glass is liable to become speckled with a kind of mildew, which eats through the amalgam at the back of the glass, and frequently penetrates into the substance of the glass itself. To remove these defects, the silverer generally has in his shop the proper apparatus for re-polishing the glass; or, if the mildew has eaten in deeply, the glass must be re-ground, by a process similar to that followed in the making of glass. Very frequently, however, the grinding and polishing of old glasses is a separate branch of business, carried on by persons who have nothing to do with silvering:

thus affording another instance in which the advantages of the division of labour lead to the separation of processes into different and independent branches of business,—a general result of the natural tendency of manufactures, when allowed to follow an unrestricted course.

It is generally found that where mercury is largely employed in the metallic state, the health of the workman is greatly injured by the rapid action of that metal on the human system. The process of button-gilding, in which mercury is employed, affords an instance of this; and the trade of a silverer furnishes another. It has been observed that there are but few old men engaged at silvering, for they are generally incapacitated from working at the business before they attain an old age. There are, of course, exceptions to this rule; but they are few. If a silverer, as is frequently the case, can have part of his time occupied in out-door employment,—such as bringing plates from the glass warehouse, taking them to their destination when silvered, &c.,—he breathes a little fresh air at intervals, instead of being confined in the silvering room all day. The silvering of common glass is more destructive to health than that of plate glass, arising from the peculiar mode in which it is done. In drawing the sheet of paper out from between the glass and the foil, it brings with it a thin coating of what is called *dross*: this is a light blue powder, a portion of which is continually flying in the air, and is, with the air, imbibed by the workman, and drawn into the lungs. The breathing, the sight, and even the memory, are affected by this subtle poison. And yet, with all this, the silverer (unlike the workers at many unhealthy employments) receives but a low average of wages.

The use of mercury for silvering glasses (like that of white lead in House Painting) is so preferable to

any other substance at present known, that if we were to dispense with the pernicious ingredient, we should not know what to substitute for it. There is no other artificial process whatever, by which a perfect and true reflection of an object can be obtained so well as by plate glass coated with mercury at the back,—if we except, perhaps, the speculum of a reflecting telescope or microscope. Both the surfaces of the glass are perfectly level and beautifully smooth, and the substance of the glass is nearly free from colour; while mercury is the only metal which we find in the state of a fluid at ordinary temperatures: it is likewise, in itself, white, and exceedingly brilliant. A sheet of leaf gold may be stuck upon a piece of glass with water; but it gives scarcely any reflection of the face. Leaf silver would be just as bad; and we should find that silver, white as it is, and in whatever way it might be used on glass, would not make a good looking-glass. It is the fluid state of mercury which renders it so serviceable for this as well as for many other purposes.

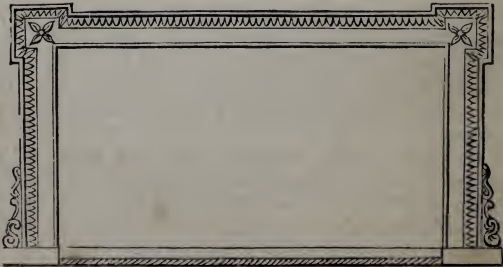
#### ON THE STYLE AND PATTERN OF FRAMES, &c.

We have hitherto treated of the processes connected with the preparation of the silvered glasses, which the Carver and Gilder has to put into frames, of various kinds. We now come to processes which are more nearly connected with the business of a Gilder.

We have before observed, that the frame of a picture or of a looking-glass is seldom made by the Gilder, but by a Joiner, whose business very much resembles that of a Carpenter. Previously to giving a description of the joiner's employment, however, it will be desirable to make a few remarks on the subject of *taste* and *fashion*, as connected with frames of



(Fig 1. p. 23.)



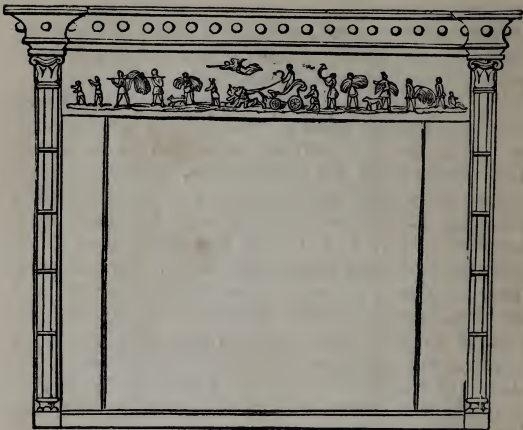
(Fig 2. p. 23.)

various kinds. The joiner must make a frame according to the orders of the gilder; and the latter is guided by the prevailing taste of the day.

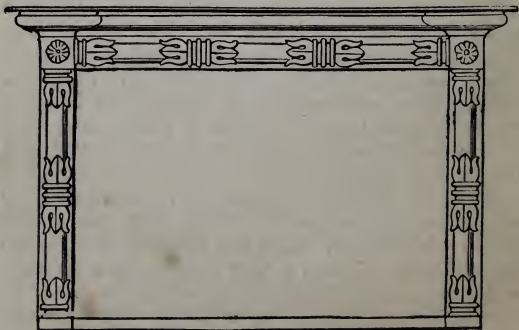
The first plate glass made in England was of the kind called "Vauxhall plates," which were distinguished by having the edge bevelled or sloped off all round. They were used for pier-glasses, before chimney-glasses came into general use, and were generally framed in narrow oak or walnut-wood frames, more or less decorated. Fig. 1. will give some idea of the better sort of these pier-glass frames. In process of time, the glass was made in the form in which we now see it,—chimney-glasses became fashionable,—and gradual changes were made in the style of frames. Fig. 2. will represent the carved oak frame, in use about the reigns of George the First and Second.

During the latter half of the last century, the frames for looking-glasses were, generally speaking, more architectural and defined in their character than they have since been. It was usual to have a cornice at the top, with a frieze just below it, on which was represented, in relief, some allegorical subject,—such as a Bacchanalian procession, &c. The upright sides of the frame consisted of a flat ground, in front of which was a column or pillar, generally of the Corinthian order, terminated with capitals and bases of the same order; square blocks or plinths supported the bases of the columns; while the capital supported the cornice. (See Fig. 3.)

At a later period, the ornaments on the frieze were superseded by a horizontal column, of the same order as the side columns. This was certainly, in an architectural point of view, a very unmeaning alteration, and was made still more so by ornaments placed at regular distances along the columns; while capitals and bases were altogether abolished, the cornice being supported by square blocks at the upper corners of



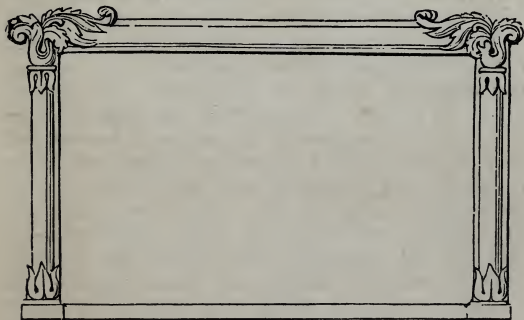
(Fig. 3. p. 23.)



(Fig. 4. p. 25.)

the frame. In short, the frames could not now be said to possess any architectural character, but were subject to every freak of taste. Fig. 4. may be taken as a type of this pattern.

The next decided change was, to dispense with the cornice of the glass-frame altogether,—making the top and sides just alike. The two upper corners consisted of blocks, on which pateras or flowers were placed; and the columns abutted against the blocks. But in time a farther change was made, by removing the blocks altogether from the upper corners, and supplying their place with a carved ornament, consisting of leaves of foliage, &c., which covered the ends of the columns; while a smaller ornament rested on the bottom blocks, and covered the lower ends of the columns. (See Fig. 5.)



(Fig. 5.)

Within a few years a farther departure has been made from the old style, by dispensing with columns altogether. The top and sides of the frame were made of equal width, and consisted of a flat ground, bounded at each edge by a hollow or some other

small moulding; and on the corners of the frame were placed carved or composition ornaments, which, however tasteful and elegant they might be, had seldom much pretension to a definite or architectural character. Sometimes a portion of the ornament resembled the end of a shepherd's crook, the staff of which ran up the side of the frame; generally speaking, however, the ornaments resembled different kinds of foliage, and the taste of the carver was called into requisition to make the ornaments appear as if they formed a necessary part of the flat ground on which they were laid; an effect which was by no means attained in many cases.

This style of frame has continued in use until our own day for glasses of a moderate size; but another change has taken place within a comparatively recent period, in the pattern for glasses of a large size. This new style is, indeed, "modern antique." A fashion has sprung up, by which all the old carved frames of the ages of Charles the Second, queen Anne, and especially Louis the Fourteenth, have become greatly in favour. So much has this been the case, that dealers have gone to the continent, for the purpose of buying all the old carved frames, and pieces of frames, that they could meet with,—the necessary qualification being *old age*. These were easily sold in England, and when the supply slackened,—the demand still continuing,—the carvers and the composition ornament makers set about imitating the antique productions which were now too scarce to supply the market. Where no fixed standard of taste is adopted, fashion soon veers round, and almost as soon becomes general over the country. Such is the case with these modern antique frames; for they are almost the only kind now employed for large glasses.

With respect to the rationality of any of the styles

of glass frames which we have described, our decision must depend entirely on the circumstance, whether an architectural character ought to be looked for in these frames. Those who think that such ought to be the case, will have reason to regret the gradual progress of change within the last half century. Those, on the other hand, who think there is no sufficient ground for adopting an architectural style in frames, are justified in thinking that the present taste is the most elegant that has yet appeared in



(Fig. 6. p. 28.)

these matters. Certain it is, that the frames now made are richly and elaborately ornamented, representations of fruit and flowers being frequently interspersed among various species of foliage:—as in Fig. 6.

The above details relate chiefly to chimney-glasses, that is, such as are placed on the mantel-piece. But they will apply also, in great measure, to pier-glasses, which are long narrow glasses placed in the piers between windows. The general character of these frames is, that they are made narrower in the moulding than the frames for chimney-glasses, on account of the limited space devoted to their reception. But the style or pattern has undergone nearly as many changes by the caprice of fashion as the chimney-glasses.

An addition to the pier-glass has become prevalent within a few years: we mean, the *consol table*. This very elegant article of furniture is a table, generally with a marble or scagliola top, carved and gilt legs, marble or polished wood plinth on which the legs rest, and looking-glass back. The pier-glass is rested on this table, and as it frequently reaches to the ceiling, there is a brilliant assemblage of glass, gold, &c. from the ceiling to the floor.

We must now say a few words respecting the changes of style in *picture frames*.

Picture frames have undergone as much fluctuation through the influence of fashion, as looking-glass frames. Until about the middle of the last century, the frames for pictures were almost invariably carved before they were placed in the hands of the gilder. The earlier English prints, more particularly large historical subjects, had, in general, very narrow black frames, with a carved and gilt edging inside and out. But when the art of making composition ornaments became well known, the carved frame became superseded by straight

moulding frames, whose plainness was relieved by composition ornaments. A very common pattern for the frame was, a broad deep hollow, terminated on the outside by an astragal or ovalo, and on the inside by various hollows and squares, on some of which were placed running sprigs or other ornaments, made of composition; while in the corners of the frames, shells, made also of composition, were frequently placed.

When engraved prints were first produced, they were preserved as curiosities in the collections of connoisseurs; but in time they became common ornaments for the walls of a room, and, as such, required frames to protect them from injury. It is a decision in which the tastes of most persons have agreed, that a print does not require so massive a frame as an oil painting; consequently a difference has generally been observed between the two classes of frames in this respect. The frame for a print is seldom more than three or four inches in the width of the moulding; while the frame for an oil painting of the same size is frequently double that width: again, the ornaments, if any, on the former, are uniformly light and airy; while those on the latter are generally bold and massive.

The patterns of picture frames have sometimes been established by individuals whose celebrity has given a certain stamp of importance to any thing which they advocate or propose; thus, for instance, there are the *Carlo Maratti* pattern, and the *Lawrence* pattern, for frames for paintings. The former was a bold and broad frame, not elaborately ornamented, but containing a peculiar running sprig or leaf, known as the "Carlo Maratti leaf,"—or, with that clipping of words to which workmen are so prone—the "Calmarat." This pattern was, as far as we have the means of knowing, devised by the

celebrated artist whose name it bears, and who lived about two hundred years ago. The *Lawrence* pattern was employed by the late Sir Thomas Lawrence for the frames of nearly all the portraits which he painted. Its peculiarity is, that there is but little bold foliage work about the frame, but that the groundwork is covered nearly all over with small ornaments.

The Carlo-Maratti pattern belongs to a class of frames which are now almost entirely out of use. But the Lawrence pattern is a type of those which are generally known as *French* frames, and of which there are great varieties at the present day. The general feature of these frames is, that the principal portion of the width of the moulding consists of an ogee, which we may perhaps characterize as a round and a hollow placed side by side. These frames are generally ornamented at the corners, and frequently, but not always, at the centres of the sides. Some years ago, it was customary to make these mouldings very deep from front to back, so as to give the picture an appearance of being deeply set; but at present they are made very shallow, some of them, indeed, almost flat. This variation of fashion, even among artists of acknowledged talent, shews how small a progress has yet been made towards attaining a standard of taste in these matters.

Frames for oil paintings, like those for looking-glasses, are now frequently made in imitation of the antique, and are, as a necessary consequence, extremely varied in their character.

Prints and drawings were, some years ago, framed with what was called the *Italian* moulding. This consisted of one or more squares, hollows, flats, astragals, &c.; but with no ornaments whatever, except a small mitre or shell, which was sometimes placed in each corner. This plan gave way to the *bevelled*

*flat*, in which the distinguishing part of the moulding was an inclined flat,—half, or more than half, the width of the moulding. This bevelled flat had either a square or an astragal on the outer edge, and one or more hollows, &c., on the inside. The bevelled flat was gilt in dead gold, while the other members of the moulding were principally burnished. This pattern was long in favour, as a light but elegant frame for prints and drawings.

But even this has now gone almost out of use. Polished wood frames, in which the veins of the wood, instead of a surface of gold, are the object of attraction, are now extensively employed, instead of gilt bevelled frames. These are but very rarely used for oil paintings,—their employment being confined almost solely to prints and drawings. They are generally relieved by more or less of gilt work about them. The usual custom is, to introduce a narrow gilt moulding inside the polished wood; but in addition to this, the better kinds of frames have their outer edges cut into elegant curved forms, and ornamented with finely-cast composition ornaments, which are afterwards gilt: these have an exceedingly chaste and elegant appearance.

There is a very pleasing article of furniture which is now almost entirely out of use, but which formerly came under the attention of the gilder: we mean, the *convex mirror*. Many of our readers will remember having looked when children, with wonder and delight, at the miniature representation of their faces in a convex mirror; indeed the property which such mirrors have, of throwing reflected light in almost every direction, gives them a very brilliant appearance. When they were in fashion as part of the furniture of a room, the frames that held them were subject to as great variety of patterns as the chimney or pier-glass frame. A favourite pattern was, to have a broad bold moulding, with a circle of gilt balls re-

flecting in the hollow; branches, one on each side, held cut glass lustres; while an eagle at the top held in his mouth a chain, which seemed to hold up the branches. The circle of balls became gradually disused, and a circular moulding,—necessarily in the form of a ring,—was laid on a flat ground, similar in form to the style of glass frame prevalent at the same period. It will not be necessary, however, for us to enter into farther details on this subject, as these mirrors, elegant as they unquestionably were, may be regarded (so far as fashion is concerned) as things of by-gone days.

Window cornices, which, like looking-glass and picture frames, have generally been gilt, have also, like them, gone through many changes of form. At one time an eagle, perched on a long cornice pole, held up the drapery by his mouth. At another time, carved wreaths, sunflowers, &c., were placed over the window, and the drapery hung from or round them. Of late years, however, a form which more correctly claims the name of a cornice, has been adopted. It consists of a broad frieze or panel, over which is a projecting cornice, and at the bottom edge of which are festoons or arches, either carved, or formed of composition, and which,—as well as the other parts of the cornice,—are gilt. This style admits of great variety; and at the present day, some of the ornamented cornices are exceedingly beautiful. We doubt not, however, that ever-changing fashion will present us with some new forms before long: indeed it is not unfrequent to see the frieze or flat part of the cornice coloured similarly to the walls of the room, having burnished gilt mouldings above and below.

Gilt bordering round the top and bottom of a room is a frequent and an elegant finish to the work of the painter and paper-hanger, and comes under the hand of the gilder. They are made of wood, and vary from a quarter of an inch to four or five inches in

width, and great diversity of pattern is displayed. These borderings have not suffered so much change from the influence of fashion as frames and cornices.

Some very elegant productions in the form of tripod stands, flower and trinket baskets, candelabra, fire-screens, &c., have lately become the work of the gilder; chiefly through the circumstance that composition ornaments can be made with so much facility to imitate the antique carvings which are now in favour. The framework of which they are made is of wood, and the ornamental details, of composition;—the whole being afterwards gilt: indeed, the gilder furnishes these articles, and therefore has to procure the requisite parts from the joiner and the composition ornament maker. In the case of fire-screens, it is very frequent for the central part to be occupied either with silvered plate glass, or with a highly finished specimen of painting or drawing. In this case, the gilt portions of the screen have the character of a frame to hold the glass or picture, and a stand to support the whole.

There are many other articles which occasionally go into the hands of the gilder to be gilt; but what we have mentioned are the principal; and others of a minor character need not be particularized here, as we shall perhaps have to speak of them hereafter. One object in making the foregoing remarks on the variation in the style and pattern of frames, &c., is to shew, that although the working gilder has nothing to work upon until the joiner, the carver, or the composition ornament maker, have supplied their portion of the work, yet the master tradesman whom we call a carver and gilder is, in general, responsible for the style and pattern of the work which he supplies, and is dependent, as all manufacturers are, on the prevailing taste of the day, in the selection of the amount, the form, and the disposition, of the orna-

ments, &c., with which he decorates his work; and has to issue his orders accordingly.

We now proceed to the details of

#### FRAME MAKING.

The preparation of the wood-work of a frame very much resembles the work of a carpenter; but still it is sufficiently different to form a separate branch of business. The joiner, or frame-maker, is midway between the carpenter and the cabinet-maker; his work does not require, in general, the delicate fitting and finishing of that of the latter, but it must be more delicate than that of the former.

The carver and gilder supplies the joiner with a profile of the pattern of the moulding which is to form the frame; and the joiner selects from among his planes those which will conjointly produce the desired pattern; for it is seldom that the whole width of a moulding is produced by one plane, unless the width be small.

The wood-work for a picture frame is generally made either of deal or American pine,—more frequently the latter,—and in pieces twelve feet long, which are formed into what are called *mouldings*, according to the pattern required. The wood is sold at the timber yard in planks of various thicknesses, to be accommodated to the varying boldness of the required moulding; and these planks are sawed up into strips of such widths as may be desirable. Where the business is carried on to a moderate extent, this is done by hand, in the same way as the carpenter prepares all his wood by sawing; but where a great quantity is required, the planks are cut by saw mills worked by horse or steam power, by which means fifty lengths are cut in the same time which a man would require to cut one by hand: such instances of

economising time by the employment of machinery are so frequent in various branches of manufacture, that we have almost ceased to regard them as remarkable. Many of the frame-makers' shops are provided with lathes, or saw mills on a small scale. A small circular saw is made to revolve by the motion of the foot, while the same man who moves the machine drives the board which is to be cut against the teeth of the saw, by which the cutting is effected in about one-fourth of the time required by the common method.

In order to fashion a length of moulding, the workman considers whether it will be necessary to take a solid square piece and cut out the various details by means of planes, or whether by glueing together two or more pieces of different widths and thicknesses, he can save time and wood. To get a moulding out of one solid piece is, perhaps, more durable than if two pieces are glued together; and if the intended moulding is deep and bold, a square piece is cut out, where the depressed part of the moulding is to be, by cutting two deep grooves on adjacent sides of the piece of wood, by means of an instrument called a groove plough: these grooves meet near the centre of the strip of wood, and cut out a solid piece, which leaves the remainder in a state to be more easily worked by the moulding planes.

But if glueing of two or more pieces be necessary, the pieces are sawed out to the proper widths and thicknesses, and the surfaces planed perfectly smooth by planes of different kinds, attention being paid to the squareness of adjacent sides and sharpness of the edges, by the frequent application of gauges and squares.

When the glued pieces are perfectly dry, the form of the moulding is to be worked out by planes, the irons of which are cut out into a number of different

shapes; beads, reeds, ogees, astragals, hollows, squares, and a number of other forms, must be kept at hand, as occasion may require. With these planes the proper shape is given to the moulding, the whole twelve feet being shaped in exactly the same way, and the selection of planes, whether as to number, form, or size, being entirely dependent on the pattern profile furnished to the workman.

If the moulding be intended for a picture frame, it is now ready for the gilder; for the moulding is seldom made up into the form of a frame until some parts of the processes of the gilder have been applied to it. The reason of this is, that so many coatings of substance are laid on preparatory to the gold, that the corners of the frame would lose all their sharpness and neatness, and would appear clumsy, if the frame were joined before these processes are performed. Very frequently the mouldings are entirely gilt and finished before they are joined up into frames: in this case, the art of cutting the mouldings into pieces of the requisite length, and joining them into the form of a frame, without any defects at the joints, and without soiling or injuring the gold, is an operation as delicate, and requiring as much neatness, as the best cabinet work.

If the corners of the frame are to be covered with ornaments—such as is generally the case with frames for oil paintings—the moulding is frequently made into a frame before the gilder begins to operate upon it. This is, likewise, generally the case with frames for looking-glasses. The joinings at the corners are mostly covered with some kind of ornament, so that it precludes the necessity of that neatness of joining arising from having the gilding performed previously.

Whether or not the gilding is performed previous to the joining, the latter process is conducted as follows. In cutting up the pieces of moulding, the motion of the

saw is guided by a *mitre-box*, which consists of two raised ledges of wood, with oblique cuts in them. The moulding is placed between these ledges, and the saw is introduced into the cuts, so that in sawing through the moulding the saw is kept in one direction. The cuts are made in an oblique direction, in order that the ends of two pieces of moulding, when cut in this way and laid end to end, should form the corner of a frame, the two pieces being at right angles to each other. The saw used in this process is called a *back-saw*, having a stiff iron or brass back to make it more firm and rigid.

When the pieces are all cut to their proper length, the ends are planed, to make the joints more neat and perfect. To effect this, the piece of moulding is placed on a board called the *shooting-board*, which has a ledge so situated as to receive a long plane laid on it sideways, with the plane-iron in a position to take a fine shaving off the oblique end of the piece of moulding.

When the pieces are thus prepared, they are fixed together by means of glue and nails. One piece is held tightly in a bench vice, and the adjacent piece is held in the left hand; and the joining ends being wetted with warm strong glue, they are placed in contact, and nails driven in with such reference to the form of the mouldings, that they shall help to secure the corner without appearing in the front of the frame. This is a part requiring considerable dexterity, and can only be mastered by long practice.

When the joining is quite dry, the back of the frame is planed smooth, to give it a neat appearance; and there is frequently fitted to it either a back-board or a strainer. When a small print or drawing is framed, it is generally secured at the back by a back-board, which merely consists of a piece of thin pine plank, cut to the right size and planed smooth on

both sides. But when a large print is framed, it is usual to paste it on calico strained tightly over a slight frame. This frame is called the strainer, and is made by the joiner when he joins the frame. It is merely a thin strip of wood cut to the proper length, and joined at the corners by *laps* instead of *mitres*.

In the modern glass frames, which are made in imitation of the antique, there is not so much work for the joiner as for the carver or the composition ornament maker; since the solid wood-work which holds the glass is very little more than a ground on which the other workmen are to perform their processes. When the architectural glass frames were in use, however, the joiner's department was of much more importance, since the cornices, columns, &c., were not so loaded with ornament as to hide or destroy the groundwork on which they were placed.

The mouldings, which, as we have before said, frequently go round the top and bottom of a room, together with window cornices, and other articles usually supplied by the carver and gilder, are made by the joiner in much the same manner as frames for glasses and pictures. But it must be understood, that the joiner has nothing whatever to do with the ornaments which enrich frames and other similar articles: his avocation is, in these cases, very little different from that of the carpenter, except that, by keeping a stock of planes of a particular class, and by being in the habit of making such things, he can supply the gilder with frames and mouldings more suited to his purpose, and at lower prices, than a common carpenter.

This remark respecting the similarity of the work of the joiner to that of the carpenter, does not apply so much to more highly-finished specimens of the joiner's work. We lately remarked the rise of the custom of making polished wood frames serve the

purpose of gilt frames. This fashion has added a new feature to the joiner's business, and has, in the same degree, lessened the work of the gilder.

The wood employed for these purposes is principally maple, plain oak, pollard oak, elm, rosewood, satinwood, and zebrawood; which are used in the form of *veneer* not thicker than a shilling. The general form, or groundwork, of the frame is made of deal or American pine, in the same way as if it were for gilding; and the fancy wood is glued upon the surface of such ground. The process of glueing the veneers on the deal or pine, is a species of cabinet work, and requires equally as much care. This is especially the case when the shape of the moulding is that of an ogee, in which the veneer has to be bent into a double curvature. Generally speaking, veneered mouldings are either flat or bevelled; but when they are of the ogee form, the veneer is very liable to start or spring up from the foundation, unless laid on with great care. The veneers are first cut to the proper width, and are sponged with hot water, to render them somewhat pliable. The moulding which is to receive the veneer is made pretty warm before a fire; the moulding and the veneer are then covered with hot glue, and the veneer is laid on the moulding. Two pieces of similar form are done in this way at the same time, and then laid face to face, by which each one acts as a sort of press to the other, and the two are confined firmly together by screws until the glue is dry.

When the veneer is thoroughly dried, it is trimmed at the edges, &c., to give it a neat appearance, and then subjected to a process of polishing. The French polish used for this purpose is a liquid composed of certain gummy and resinous substances, dissolved in alcohol or spirits of wine. It is sometimes made by the polisher himself, and sometimes purchased by him ready-made. A close, but soft, coil or pad of woollen

is moistened with this liquid, a clean piece of linen laid over it, and a little oil applied to the linen. With this pad or rubber, the veneered wood is rubbed for a long time—renewing the liquid on the rubber from time to time—until the veneer presents a brilliant polish. The art of the polisher is not a difficult one, and yet it requires that tact and method which can only be acquired by long practice.

In frames made of these kinds of polished wood, there is generally a small inner moulding or beading, which is gilt, to give a relief to the general appearance of the frame. This gilt moulding is prepared by the gilder in the same manner as other specimens of his workmanship, the joiner having nothing to do with the gilding of it. This moulding is fixed by the joiner into a small groove made on purpose to receive it, in the inner edge of the polished wood moulding, and is generally done before the moulding is made up into a frame.

The outer edges of these polished wood frames are sometimes veneered; while at other times they are made either black or yellow. The black is produced by staining the wood black, and then rubbing it with black wax, which, after being well worked over by a piece of cork, and afterwards a piece of woollen cloth, presents a tolerable polish. The yellow employed for the outside is produced by a mixture of parchment size and stone ochre, which is laid on, while warm, with a brush.

For cheap purposes, black or black and gold frames are frequently used. Frames of this description were very prevalent during the last century. The foundation was made of deal; while the part which was to be moulded by the plane was made of pear-tree wood, which admits of a fine smooth surface.

The pattern most generally adopted for black and gold frames at the present day is a series of reeds,

terminated on the outside by a fillet, and on the inside by a gilt hollow. The hollow is inserted into a groove after the other part of the moulding is stained and polished. The staining is performed thus:—An infusion of logwood, when laid on hot, will impart a red colour to the wood, and will prepare it to receive the black dye. This latter may consist of ink, or an infusion of galls, or of vinegar in which iron filings have long been steeped, or various others which have been recommended. The black dye, whichever be chosen, is laid on with a brush and allowed to dry; two or three coats being given if necessary. The wood is then rubbed with hard black wax until a thin surface of wax covers the wood; after which, it is rubbed with a cork and with woollen cloth, by which a fine polish is produced. If the proper kind of wax be employed, it will not adhere to the fingers by handling.

A superior kind of black frame is now sometimes made by veneering with pear-tree wood, in the form of an ovalo or ogee, and then staining it as before described. But, instead of polishing with wax, French polish is employed, as for fancy woods; the result of which is a lustre and smoothness of surface equal to the highest black japan polish.

Circular and oval frames are now so seldom employed for pictures and glasses, that it is hardly necessary to treat separately of them. When they are required, however, they must be the work of the turner; since a peculiar machine, called a *lathe*, is indispensable to their production. When mirrors were in fashion, the frames for them were necessarily made by the turner; but those articles, as we have already observed, are now almost out of use. A great number of the old prints and drawings produced by Bartolozzi, Cipriani, and Angelica Kauffmann, about half a century ago, were of an oval form, and accord-

ingly required oval frames. Sometimes the outer frame was square, as if for a square picture; and between the picture and the frame was placed a *spandle*, which consists of a flat frame, oval on the inner edge and square on the outer. These spandles are very frequently used in framing miniatures on ivory, which are often of an oval form. It may seem remarkable, that it is not every turner who can produce an oval,—yet such is the case. The lathe, as generally constructed, is calculated only to turn a circle, and a peculiar adjustment is necessary to make it produce an oval.

We make these few remarks in this place, as the details of the turner's business are not sufficiently connected with that of the carver and gilder to call for a particular description under a separate head.

To return to the joiner or frame-maker, we may observe that an apprentice requires a moderate degree of strength to handle the heavy saws and planes which he will have to use; but no particular degree of ability is demanded to learn the business. It is a very healthy employment, since the body is kept in constant exercise; while, at the same time, no unwholesome processes are carried on, or deleterious materials used, during the workmanship.

It must be borne in mind, that we here treat of the joiner only in those respects in which he differs from the carpenter, and in which he is subservient to the gilder. The trade of a Cabinet-Maker and Joiner has already formed the subject for a separate "Guide."

#### MAHOGANY GLASS-FRAME MAKING.

It is a remarkable fact, that almost all the mahogany dressing-glass frames are made by Italians. There is one particular part of London from whence almost all England is supplied with these articles, the makers

being Italians. The same may be said of barometers, thermometers, hour-glasses, &c.; the most perfect kinds of these instruments, when adapted for scientific inquiries, are made by the mathematical instrument makers; but the large mass of them, made for common domestic use, are the work of the Italians, who seem to form a little community by themselves.

The mahogany glass frames made by these Italians are produced at a price which would altogether baffle a common joiner or carpenter: the wages of a journeyman carpenter for making such frames would entirely absorb the price received by the master for them. One reason for this is, that the Italians live abstemiously, and are contented with small wages and small profits; and another reason is, that they make dozens or hundreds of the same kind and size of frame at once, whereby a great deal of time is saved. One man makes the two spreading feet on which the frame stands; another makes the upright bars which support the frame; while another makes the frame itself. The feet of common dressing-glasses, which are curved into an arched form, are produced with much rapidity in the following manner. A mahogany plank, sixteen or eighteen inches in width, is sawed across into a great number of pieces, the width of each piece being equal to the intended length of the feet. The pieces are then planed the crossway of the grain with hollow and round planes, until the end profile of each piece presents the same figure as the vertical section of the feet. The pieces are then cut, in the direction of the grain, into a number of pieces, each of which forms a foot.

The frame and the upright bars are planed out to the requisite pattern in lengths of twelve feet each, and afterwards cut to the proper length and glued up. The mitred corners are, in general, keyed; for it is but seldom that nails are used in these mahogany frames.

The above alludes to the cheaper kinds of mahogany frames. There are others of a better description, called *tray* frames and *box* frames; the former of which has a flat tablet or slab underneath the glass; and the latter is provided with drawers, to hold various toilette articles. These frames differ in no respect from cabinet work, except that, by being the production of a particular class of workmen, they are produced more readily than by the cabinet-maker. They are, in most cases, veneered and French polished.

A style of frame intermediate between these two differs only from the cheaper kinds in having *turned* bars instead of straight planed bars. These turned bars, as also the little balls which generally surmount them, and likewise the feet which support the tray and box frames, are the work of a turner, who makes them for the frame-makers by the gross.

Some of the modern toilette glasses, such as the large cheval glasses which rest on the ground, are elegantly ornamented and gilt, in the same style as the modern-antique chimney-glasses. In this case, the mahogany frame-maker has nothing to do with their construction; the ornament maker and the gilder supplying his place. Some modern frames, again, are made of French-polished maple instead of mahogany, and are finished in the finest style of cabinet work. An elegant form of dressing-glass has been introduced, in which the glass is circular, and is supported by two bent arms which curve round the lower half of the frame, and meet beneath in a central pillar, which is inserted in a slab of marble. This has a very elegant effect.

In all these descriptions of dressing-glass frames, however, the cheapness of price, as compared with regular cabinet work, is not so apparent as in the commoner sorts of frames. We sometimes see

hawkers going about with showy little pictures and shaving-glasses, for a penny or twopence each:—a small square of glass, silvered, and put into a frame, and all for twopence! To be sure, the frame is not the most elegant, being made of deal, and painted red to look *something* like mahogany; but yet, coarse as they are, no one can make them at these prices but the Italians. In the country villages, a great number of small brass frames are sold by hawkers, containing silvered glass or coloured prints, as the case may be. These are likewise made by the Italians. They prepare the groundwork or foundation for the frames of the commonest wood, and receive the brass, which is exceedingly thin, from Birmingham, where it is manufactured either by stamping or drawing; and then cut it into pieces and fix it on their slight wooden frames. Yet, notwithstanding the many persons who must receive a profit from this work, the showy little brass frame, with the picture or the silvered glass which it contains, a board at the back, and a ring by which to suspend it, are all sold for about threepence.

There are but few fraternities in London more remarkable than the Italian frame-makers. It is not much more than half a century ago that they made the first step towards the establishment of their peculiar branch of business. One or two poor Italian boys came over to England, and got their living by travelling through the country to sell *shaving-boxes*, containing the necessary apparatus for shaving, always including a little piece of silvered glass. This was found to be a profitable employment; a manufactory for the shaving-boxes and other small articles containing silvered glass (for that was the distinguishing peculiarity of this trade) was established in London, and more Italian boys came over to England, and perambulated every corner of the country on foot. Small looking-glasses, either to hang up by a ring or

fixed in swings, were the next objects of their attention: more manufactories were established, and country shopkeepers, instead of depending on the uncertain visits of itinerant dealers, sent their orders up to London, and thus gave a commercial importance to the Italian frame-makers. By degrees, they have extended the sphere of their dealings, both as to the beauty and the number of the frames which they produce. But still a nationality—a love of their country and their countrymen—clings to them, and manifests itself in the almost exclusive employment of Italians in their workshops. Many of them have now grown old and wealthy; and, by being succeeded in business by their sons, born, perhaps, in this country, the fraternity will probably become more and more *Anglicised* in their dealings and associations. There are but few workmen in London more sober, peaceable, and industrious, than the Italian frame-makers.

It appears, then, from what has been now said, that the principal reason why the trade of a mahogany frame-maker is separated from that of the joiner is, that by confining themselves to that branch of manufacture, the former can supply those articles at a much cheaper rate than the latter,—a circumstance which, in commercial economy, has an irresistible influence.

#### CARVING.

The art of carving is one of great antiquity. In early times, it was ranked as a species of sculpture; since idols, figures of gods, heroes, &c., were cut in wood as well as in stone. The durable nature of the latter material, however, has led to the abandonment of figures of wood in most cases.

The use of carving, as a means of producing representations of fruit, flowers, and other ornamental sub-

jects, has been continued from very early ages to our own time. The choirs of cathedrals, the ancient mansions of some of our nobility, and many other places, afford evidence of the extent to which carving was carried in by-gone days. There was an eminent carver named Gibbons, who, in the reigns of Charles the Second and James the Second, executed many specimens of carving which still remain as proofs of his ability: some of these specimens are at Windsor Castle.

The great pitch of excellence to which the art of painting arrived in the sixteenth and seventeenth centuries, and the number of pictures which were produced at that period, must have given a great impetus to the business of the carver; for nearly all the frames made for those pictures were, as we have before observed, carved previously to being gilt. The elaborate richness of the old frames, which are now being imitated by the composition ornament maker, shews that the art had attained considerable perfection.

At a later period, the frames were made of broad deep mouldings, which had carved leaves, trellis-work, &c., laid upon them in different parts. This gradually led the way to the introduction of composition ornaments, which have now, to a large extent, superseded the use of carved ornaments. But still, for very large frames, the latter are much used, both on account of their superior lightness and boldness, and because the ornaments can be made to any style and form which the purchaser may require; whereas composition ornaments must depend for their patterns upon the moulds which the ornament maker may happen to possess.

The employment of carving differs from those which we have yet described in this circumstance,—that a person engaged therein ought to possess some taste for

drawing or modelling, or both. The ease and elegance of the foliage and flowers which the carver has to imitate, cannot be produced by one who does not possess a natural taste for drawing, and, we may add, some knowledge of botany ; since it very frequently happens that the fruit, flowers, and foliage, upon fancy work generally, whether it be the lace veil of a lady, or the ornaments of a looking-glass, are but poor imitations of nature. It excites regret to see good workmanship thrown away, as it often is, upon bad design, which a little knowledge of botany might convert into a tasteful production, simply by making it natural. A carpenter can make his mouldings and his sashes, and a joiner can make his frames, without requiring any particular exercise of taste, because he has a rule, a square, and compasses, to guide him in every part of his work. But a carver can derive but little assistance from such guides ; for if his taste cannot tell him how to make a leaf of foliage appear light and easy, all the rules and compasses in the world would not be sufficient for that purpose.

It would be desirable, therefore, that before a parent apprentices his son to a carver, he should ascertain whether the youth has ever shewn a natural cleverness or inclination for drawing. We do not say that a person would never be a carver unless he had such a talent ; but we mean, that he would not have such advantages in learning or carrying on his business, as if he had possessed the taste of which we are speaking.

When a piece of carved ornament is to be afterwards gilt, a soft and cheap wood, such as American pine, is generally employed ; but when the veins of the wood are intended to be seen, without either paint or gold, such wood as box, oak, pear-tree, maple, lime-tree, &c., is employed, according to the purposes to which the ornament is to be applied.

The soft wood, then, which is used by the carver for ornaments afterwards to be gilt, is sawed out of planks of various thicknesses, according to circumstances, and pieces are glued one upon another at those parts which are to be most raised or prominent. This is an easier plan than that of cutting the ornament out of a solid block of wood equally thick in every part.

The carver is, in most cases, furnished with a pattern of the ornament which he is required to imitate, which is drawn upon paper. When he has selected a plank of the proper thickness, he lays the drawing down on the plank, having previously cut out the paper to the exact outline of the drawing. He then marks this outline on the wood, according to the drawing; and any holes which are to be cut entirely through the wood, are marked in the same manner. He then, with a bow-saw, which is particularly adapted for sawing in curved directions, cuts out the plank according to the pencil marks, and also cuts the holes. This gives him the requisite outline, and he has next to fill up details.

For this purpose, he screws the piece of wood (or glues it, if thin) down to his bench, by means of a screw which passes from beneath through the bench and into the lower surface of the wood; by which means the wood is held firm, without making screw or nail holes in the upper surface, which is to be carved.

Having now sketched the details of his ornament on the piece of wood, he proceeds to cut the wood into the proper form by means of very sharp tools, the greater part of which are gouges of various sizes and shapes. A gouge is a sort of chisel, with one surface round and the other hollow; and a tool of this form is much more useful to the carver than a flat chisel, since the sharp corners of the latter would be apt to

dig into the parts of the wood which were not required to be cut. A carver has seldom to produce a perfectly-flat surface, so that gouges are used for almost every kind of ornament; they are, therefore, made of different widths and different degrees of curvature of surface. Some of them are bent at the end, in order to work out the details of the deep parts of an ornament, which could not be effected by a straight tool. The whole of these tools must be kept very sharp, or the carver would make but little progress at his work. The sharpening is performed by rubbing the edge obliquely on a soft stone moistened with sweet oil, and requires some care to avoid altering the shape of the edge.

When a piece of ornament is carved, and the proper effect produced on a front view, it is necessary to chamfer or undercut the edges, to give an appearance of lightness. To effect this, the ornament is held in the left hand, and the wood is cut away in the proper places by the tool held in the right hand.

The foregoing details apply to pieces of ornament, such as those which we have stated were placed on the corners of glass frames a few years ago. But, when a frame is carved nearly all over, a somewhat different process is necessary. The joiner must precede the carver, and make the groundwork on which the latter is to be employed; he must, in fact, make the frame.

This is a part of the carving trade which, as may be judged from our preceding remarks, has undergone much fluctuation. In the early part of the last century, such frames were very common; in the latter part of the same century, and the beginning of the present, they were comparatively rare; while at the present day, their use has again revived.

In preparing such frames as these, and before the carver commences his work, the joiner, in putting the

frame together, must regulate the thickness of the wood at different parts, by the nature of the ornaments which are to be situated at those parts; in order that the carver may have to cut away as little as possible of the wood.

Much tact is necessary in regulating the motion of the carving tools with reference to the direction of the grain of the wood: a piece of wood would be presently split, were it not for precaution in this matter. No written description will suffice to shew how to attain success in this particular, since, like the details of carving generally, personal inspection and personal instruction will alone give a clear idea on such matters.

Notwithstanding the extent to which composition ornaments are used on frames, the lightness and durability of carved frames, and the facility with which any required pattern may be produced, will probably always prevent them from getting quite into disuse.

The chair-carver, and those who carve for cabinet-makers, &c., are seldom the same as those who serve the gilder. They have to use harder wood and sharper tools, and have to finish up their work more neatly, because any roughnesses in ornaments that are to be gilt may be easily removed by the processes which the gilder afterwards employs; but no such process is employed by the cabinet-maker on his ornaments; so that they must be made smoother in the first instance. All carvers, however, are accustomed to use bent files and rasps to smooth the surface of their ornaments after the cutting has been performed.

A carver can, in a general way, earn much more than a carpenter or a joiner,—his wages, in full work, frequently amounting to £3. per week. This may, perhaps, be explained by the circumstance that there are much fewer of them in proportion. A carpenter or

joiner is engaged wholly at manual employment; but the carver must possess a certain amount of taste as well as manual skill; which limits the number of persons employed in this line. We have known a carver who could earn £4. per week; but his rapid earnings were a misfortune to him: for, as he could support himself with half-a-week's work, he spent the other half of the week in sottish indulgence, and thus acquired habits which rendered him and his family poor, dirty, and miserable. This furnishes an instance, to add to the many which come under the notice of every one, that the power of earning a good deal of money is not sufficient to make a man a happy and creditable member of society: he must respect himself, and act so as to obtain the respect of others; for we must remember, that a facility of getting money will increase our power of doing evil quite as much as that of doing good.

#### COMPOSITION ORNAMENT MAKING.

The first employment of the composition which is now used for making picture-frame ornaments, was for ornaments for chimney-pieces. In houses built about sixty or eighty years ago, we frequently see the chimney-pieces decked with laurel leaves, beading, oak leaves, Cupids, flying angels, Fame blowing a trumpet, &c. These are, in general, made of the composition of which we are now speaking, and were the first purposes to which it was applied.

The principal ingredients in this composition are glue, water, linseed oil, resin, and whiting, which are combined in such proportions as to make a mixture soft enough for working, while, at the same time, it should be so tough as not to crack, and should harden in a few hours if the ornament be thin, or in a day or two if it be more massive. The state in which it is

used by the ornament maker is that of a stiff dough ; and the making of it is not much unlike the process by which the baker makes his dough. The proper amount of glue is steeped in water, which is heated to dissolve the glue ; while the other ingredients—oil, resin, &c.—are melted in a separate vessel, and then poured into the vessel containing the melted glue. The whiting is pounded, and placed in a tub or pan—being previously warmed if the weather be damp and cold—and the hot melted glue, &c., is poured upon the whiting, and then well mixed up with it, and kneaded, rolled, and beat, until it becomes a smooth, tough, elastic kind of dough or putty. It may then either be used at once, or may be laid aside for future use ; but, whenever it is used, it must be warmed, either before a fire or by admitting steam to act upon it, because, when cold, it is too hard and stiff for use.

The manner of using this composition is to press it into moulds ; the preparation of which is by far the most important part of the composition ornament maker's business : indeed, it is generally done by men who are not engaged in making the ornaments themselves. The moulds are, in most cases, made of box-wood, which, by its smoothness of grain, admits very fine figures to be cut in it, and, by its hardness, is very durable. The mould carver has to proceed with his work just in an opposite way to the common carver ; for he must make depressions or hollows instead of raised projections, and projections instead of hollows. An engraver must make all his figures left-handed on his engraved plate, if he wants them to appear right-handed on the printed copy of the plate : so, likewise, must the mould carver make his mould look, in every part, directly the reverse of what he wishes the ornament to appear.

The block of wood being planed and smoothed, the

carver draws on its surface a representation of the object which he wishes to carve, and then proceeds to work out the minute details. The tools used in this sort of carving are exceedingly fine and sharp, some of them not exceeding one-twentieth of an inch in width. They are, as in common carving, mostly gouges, with various degrees of curvature. The sharpening of them is a matter of great nicety, and in some cases requires files made of very fine wire.

The block of box-wood is moistened with oil during the process of cutting, in order to facilitate the progress of the tool. The cuts are, in the first instance, made perpendicularly from the surface of the wood, and afterwards varied into the necessary directions to produce the pattern. In order to know how to vary the depth of different parts of the mould, the carver must either be guided by the accuracy of his eye and the correctness of his taste, or he must have another mould of the same pattern before him.

Sometimes moulds are made by casting, the material being brass, copper, pewter, lead, or sulphur (plaster of Paris being too easily broken). A model, representing the object which it is desired to produce, is made of composition or plaster, and is placed on a flat stone, and surrounded by a raised border or edging, so that it lies in a cell or trough. The model is then oiled, and the melted metal or sulphur is poured on it, so as to entirely cover it. When cold, the raised border is broken away, the mould taken up, and the model removed from within it. It is then imbedded in a wooden case to preserve it from injury, and to fit it for the better reception of the composition. Sometimes brass moulds are made in this way, and afterwards *chased*; that is, the minuter details of ornament are cut, or rather scratched, by very fine tools.

When the mould, whether of wood, metal, or sulphur, is to be employed to cast ornaments, it is brushed

over with oil, to prevent the adhesion of the composition. A piece of composition, large enough for the intended purpose, is then taken up in a warm soft state, and pressed into the mould by the hand. A wet board is then laid upon the upper surface of the composition, and the whole is put into a powerful screw-press, by which the composition is pressed into every part of the mould, however deep and minute it may be. The same pressure makes the upper surface of the composition adhere to the wetted board, so that, when it is taken out of the press, the mould may be pulled off the ornament, leaving the latter adhering to the board. When the cast has become a little hardened, it is cut, or rather sliced off, with a broad knife, to the required thickness.

The composition ornament, thus made, is exceedingly pliant and supple, and may be bent into almost any form without breaking or injuring it: it is this property which makes these ornaments so convenient; since they may be applied to the round, the flat, or the hollow parts of a frame, with almost equal ease. They are fixed on either with glue, or, if quite soft and warm, with hot water, which, by softening the glue contained in the composition, produces a sufficiently strong cement; and, in a short time, they become sufficiently firm and hard to be handled without injury.

In those modern frames which are intended to imitate antique carved frames, the manner of laying on the various pieces of ornament requires much care in the workman. If an antique frame, or a drawing from it, be given to the ornament maker to imitate, he must have moulds carved of all the various parts, so that when united on the frame, the assemblage of composition casts may present a fac-simile of the frame. If he be required to produce a frame, or if he wishes to do so on speculation, which shall possess a

general resemblance to old patterns, but without tying himself down to any individual pattern, he has a demand on his taste and judgment, both in the cutting of moulds and in the disposition of the various pieces of ornament on a frame. A drawing or a copy may assist, but some degree of natural taste is almost indispensable in this part of the business.

This composition, being a compact substance, is heavy,—so much so, that on some large frames the weight of composition is as much as 200 lbs. This is a point in which carved ornaments have a great superiority over composition; indeed, the heaviness of the latter was one reason which led to the adoption of *papier-machée* ornaments.

When *papier-machée* ornaments are used, they are cast in moulds greatly resembling those of which we have lately spoken. The paper is in the state of a pulp; but there is this difference between the two kinds of ornaments. The *papier* pulp is pressed between two moulds, so that the thickness of the ornaments is seldom more than about a quarter of an inch at any part; this is attended with two advantages, viz. the ornament is of less weight, and there is a saving of material. These ornaments are much lighter than those made of composition, and will bear a blow or a fall without so much liability of fracture. Still, however, they are not much employed by the carver and gilder, as the substance of which they are formed does not form so good a foundation for gold as is afforded by wood or composition. *Papier-machée* ornaments are much employed in the decoration of large buildings, such as theatres, &c. The ornaments in the new House of Lords are of this material.

The important part of the business of a composition ornament maker is, as we have before observed, mould carving: this is a process which requires much

care and taste, and at which liberal wages can be earned. The art of making the ornaments is a very easy part of the business; and a parent who intended to apprentice his son to this occupation ought to understand whether mould carving were to be included in the instruction given to the youth, as otherwise he would devote much valuable time to the acquisition of a very small amount of knowledge.

#### GILDING.

We come now to the last trade of which we have here to speak. What we have hitherto stated will shew that many of the avocations which the gilder professes to carry on, are really performed by others; but we will now treat of the processes which peculiarly belong to the gilder.

There is a trade—*i. e.* that of the water-gilder—which is, by some persons, supposed to be very similar to that of the gilder of picture frames. The employments are, however, entirely different, and have no connexion with each other. The water-gilder puts a surface of gold on metal; and throughout the process employs tools and materials very different from those of the gilder, of whom we now proceed to speak.

There are two kinds of gilding usually on glass and picture frames, viz. *burnish* gilding and *oil* gilding. Burnish gilding is also of two kinds, one called *burnish* and the other *matt*. We will proceed to the details of burnish gilding.

Suppose that we have a plain picture frame, such as the bevelled flat frame of which we before spoke. It is made by the joiner into a twelve-feet length of moulding, and in that state it passes into the hands of the gilder. He first gives it a priming of hot size and whiting, called *thin white*. The whiting employed by the gilder is not the same as that used for domestic

purposes, but is finer and more free from grit. The *size* employed is prepared by the gilder from parchment cuttings or glove cuttings. The cuttings are well washed in water, and then boiled in a certain quantity of clean water, until the latter has a particular degree of gluey adhesiveness, which can only be determined by experience: this is then poured off into a clean dry vessel, and allowed to cool. When about to be used, the grease at the top and the sediment at the bottom are cut off with a knife, the size is melted in an earthen pipkin, and a small quantity of finely powdered whiting is mixed up with it: this is then called *thin white*, and is used as above observed.

When the thin white is dry, all holes and irregularities in the moulding are filled up with putty. This putty is not the same as that employed by the glazier, which contains oil, but consists of whiting and size mixed to the consistence of putty. When the puttying is dry, a coating of *thick white* is laid on with a brush. This thick white differs from the thin white only in having a larger proportion of dry whiting mixed with a given amount of size,—the consistence attained being rather thicker than that of oil paint. When the first thick white is dry, another is laid on in the same manner, and, similarly, a third, a fourth, and a fifth, are laid on, all about equal in thickness, and each one being perfectly dry before the next is applied.

But in laying on this large body of thick white, the fine squares, hollows, and fillets, would be liable to be stopped up and lose all their clearness and sharpness. To prevent this, opening tools, consisting of crooks, chisels, gouges, &c., are drawn along the fine members of the moulding while the thick white is yet wet; by which means the form of the various mouldings is retained. This is still better effected by the *double opening white*, which consists of two thick whites—

the one laid on almost immediately after the other, by which a thick soft coating covers the moulding. Hard stones, shaped to the forms of the mouldings, together with the opening tools before described, are now worked over every part of the moulding, by which asperities are smoothed down, depressions filled up, and edges brought up nearly to their required degree of sharpness. In this state the body of whiting on the moulding is from one-sixteenth to one-twelfth of an inch in thickness.

It is now trimmed at the back and edges by cutting off lumps of whiting which had flowed over from the front, which prepares it for the process of *smoothing*. This is done by means of pieces of pumice and other stones, shaped so as to fit the various parts of the moulding. A sponge or soft brush is used to wet the moulding, and the stone which is to be used, being likewise wetted, is rubbed or worked to and fro along the moulding until that part is perfectly smooth. Another stone, fitting a different part, is then used in the same way; and so on, until every part of the length and breadth of the moulding has been worked over by the stones. The moulding, if the smoothing has been properly performed, now presents a smoothness of surface exceeding, and a keenness of the edge nearly equalling, that which the moulding presented when it left the hands of the joiner; but this must be attained without rubbing off too much of the whiting, since the whole beauty of the frame mainly depends on having a sufficient body or foundation of whiting. The brilliant burnish which we are accustomed to see on frames, is, in a peculiar degree, dependent on the whiting which is first laid on the wood, and which, if in deficient quantity, cannot be adequately replaced by other means.

The moulding being thoroughly dried from the effects of the smoothing, is rubbed down with glass-

paper or sand-paper, to take off any little asperities that may remain, and to make the whole perfectly smooth. It is now ready for the process of *gold-sizing*. The burnish gold-size used in this process is a remarkable substance, composed of ingredients exceedingly opposite in their nature; such as pipe-clay, red chalk, black-lead, suet, and bullock's blood. This diversity of ingredients is, in this, as well as in most similar cases, intended to produce different effects;—one substance helps to give a brilliancy to the burnish,—another, a mellowness and smoothness,—and so on.

The form in which the gilder purchases his burnish gold-size is that of a solid, rather softer than butter. He first takes some very clear size, boiled purposely to a smaller degree of strength than the size for thick white, or, if already boiled, weakened with water. This size he melts in an earthen pipkin, but without making it very hot; and then mixes the gold-size with the melted size by means of a clean brush,—much in the same manner as a painter mixes his oil paint; and the consistence attained is about equal to that of cream. It is a source of some confusion that the same term, i. e. *burnish gold-size*, is applied to this creamy liquid as to the thicker substance from which it is prepared: we have an analagous instance in the word *tea*, which is applied to the herb as it is received from China, and also to the infusion which is prepared from it. The gilder has to say *mixed* gold-size or *unmixed* gold-size, in order to indicate which he means.

This gold-size is laid on the moulding either with a very soft hog's hair brush, or (which is better) by a large camel hair pencil, fixed in a swan's quill. The gold-size must be barely warm, and must be laid on with that nicety of touch that shall leave it equally thick in every part, and obliterate the marks of the

brush : indeed, upon a due observance of a medium between hot and cold, strong and weak, and thick and thin, in the gold-size laid on, depends much of the beauty of the moulding when gilt.

From four to eight coats of this gold-size are laid on the moulding, each one being perfectly dried before the next is applied. A soft, partially-worn piece of glass-paper is occasionally used, to take off any little roughnesses that may exist. When a sufficient body of gold-size is laid on, it is carefully washed with clean water, a soft sponge and a bit of linen rag. This must be done with especial attention to the sharp edges, which are very likely to lose the whole of their gold-size, if care be not observed the object is, not to take off gold-size, but to produce a perfectly smooth surface, especially in those parts which are to be *matt* gold. The best test of good work, therefore, is to produce the smoothest surface with the least loss of gold-size.

When the moulding is partially dry from this process, the matt parts are polished with a piece of woollen cloth, and the parts to be burnished receive another coating of gold-size, laid on as smoothly as possible.

The moulding is now ready for gilding, and we may here pause to observe how numerous are the processes necessary to prepare the wood for the reception of gold. On an average, there are about fourteen coatings of substance laid on, every one of which is mixed with size, used warm, and laid on after the previous coatings are perfectly dry. There are also about five or six processes of *smoothing* at intervals between the laying on of the whiting and gold-size.

We have now to speak of tools which embarrass the learner very much, and the proper use of which is acquired only by slow degrees, and after consider-

able practice:—we allude to gilding tools. These are, first, a *cushion*, consisting of a piece of flat board, about eight inches by six, covered with several layers of woollen or flannel, and lastly with a piece of leather, which is stretched tightly, and nailed down to the edges of the piece of wood,—the layers of woollen forming a soft elastic bed. Round half of each of the two long sides, and one of the short sides, is carried a rim or border of parchment, about three inches high, the object of which is to form a sort of cell or receptacle for the gold, while the unconfined position of the opposite end of the board facilitates the cutting of the gold.

The knife used for the purpose of cutting gold, is straight, and very smooth at the edge, although not decidedly sharp, and is brought up to a well-defined point at the end. The implement for laying on the gold is called a *tip*, and consists of two pieces of card glued together, with the ends of a row of camel hairs confined between them, the remaining portion of the length of the hairs protruding from the cards to a distance varying from one inch to two inches and a half. Sometimes the cards are circular, and are narrowed by the hairs, which spring from them like radii or the spokes of a wheel; and a little wooden handle springs perpendicularly from the centre of the card.

Those trades in which gold and silver are prepared for the use of manufacturers and artificers generally, such as Refiner, Gold Beater, &c., do not belong to our present subject. We shall therefore, in this place, only say sufficient on the method of the preparation of leaf gold, to give some idea of its nature and remarkable qualities.

This gold contains about  $\frac{1}{80}$ th of its weight of an alloy of silver and copper, and is formed into ingots of six or eight inches in length. “The ingot is

passed between solid steel rollers, until it is reduced to the thickness of a ribbon. This ribbon is then cut up into small square pieces, which are hammered on an anvil until each piece becomes one inch square and about  $\frac{1}{750}$ th of an inch thick, weighing about six grains. One hundred and fifty of these small squares are then interleaved between pieces of vellum, about four inches square, and, a parchment envelope being folded round them, are beaten with a heavy hammer, until each piece is expanded to nearly the size of the vellum. They are then taken out, and each piece is cut into four; and the six hundred pieces thus resulting are interleaved with sheets of gold-beater's skin, and again beaten till they are quadrupled in size. By dividing each sheet again into four, 2400 leaves of gold are produced, each of which is about one-fourth the size of the skins. These 2400 are divided into three parcels of 800 each,—again interleaved with gold-beater's skin,—and again beaten till they nearly reach the size of four inches square. The required degree of thinness is now attained, and the leaves are cut to about three and a quarter inches square, and laid in books, twenty-five to each book. Now by calculating the thickness of the ribbon of gold, as it passes into the hands of the gold-beater, and the subsequent division which it undergoes, and allowing for waste, it is proved that the leaves are not more than  $\frac{1}{280,000}$ th of an inch in thickness; and in France, where the process of beating is carried still farther, the thickness is said to be not so much as  $\frac{1}{400,000}$ th of an inch.”\*

The gilding tools, and the gold, being now ready, we proceed. The gilder takes the cushion, and supports it on his left hand by inserting his thumb through a leather loop or thumb-stall underneath.

\* Penny Magazine, No. 420.

with the open end of the cushion towards the right hand. He then places the tip, the knife, and a camel hair pencil, between the fingers of the left hand, each one having its proper place. This is one of those little contrivances which so often mark the endeavours of a workman to save time: if these tools were laid down on his bench, a serious loss of time would ensue, in consequence of the incessant change from the employment of one to that of another.

He then takes a book of gold, and, opening the first leaf of paper, blows out a leaf of gold into his cushion; he then turns over another leaf of paper, and blows out another leaf of gold, and so on, till he has eight or ten leaves in the cushion. This is a process which much perplexes the learner. He blows in an oblique direction, and if he exceed a certain force of blast, he will most certainly blow the leaf of gold out of the cushion. Again, when he has succeeded in blowing out some leaves, the slightest want of attention in adding to the number will cause him to blow out the whole contents of the cushion, and he will have the pleasant task of running here and there about the shop to pick up with his knife the leaves as they fall; or if there chance to be an open window, he may have to bid a long and last farewell to some of the leaves.

When the proper number of leaves of gold are in the cushion, they are all heaped up confusedly among one another, and the gilder has to use his knife with much dexterity to extricate one leaf from the rest and lay it down flat and smooth on the front part of the cushion, without breaking or cutting it. This he effects partly by the use of the knife, and partly by breathing or blowing gently on the gold, and is a task of peculiar difficulty to the learner.

The piece of moulding which is to be gilt, is laid along the bench, with one end higher than the other;

and as the width of the moulding is broken up into several divisions, such as hollows, squares, &c., it would be impossible to make a leaf of gold bend into all the various parts without breaking. The gilder, therefore, exercises a tact which can be acquired only by experience, in deciding how many separate *lays*, as they are called, of gold, will be required to cover the width of the moulding without the breaking of the gold into those irregular fractures which the gilder honours with the name of *spider-legs*. In general, a deep hollow, or a depressed square, cannot be gilt at one *lay*, but must be covered with two strips of gold laid side by side and meeting at the centre of the depression.

When therefore the gilder has made his decision as to the number of lays that will be required, he selects one lay, and proceeds with it through the whole length of the moulding, before he begins another lay, or another portion of the width. If the necessary lay be about  $\frac{3}{4}$  or  $\frac{7}{8}$ ths of an inch in width, he cuts the leaf which is spread out on his cushion into four strips: if it be about an inch in width, he cuts the leaf into three, regulating the division of the leaf of gold according to the width of the lay. It is not often that a larger piece than half a leaf is used at once.

The gilder has at hand a pan with clean water, and two or three camel hair pencils of different sizes. With one of these pencils he wets a few inches of that part of the moulding which is to form his first lay, taking care not to wet much beyond that lay. The water is to be allowed to remain pretty full on the surface, after some of it has been imbibed by the gold-size. The gilder then takes his tip in his right hand, and lays it on the slip of gold, which by that means slightly adheres to the hairs; from whence he places it on the moulding, with particular attention to

straightness of direction. It frequently happens that the hairs of the tip will not take up the gold: in such case it is usual to rub the hairs between the cheek and the palm of the hand, by which their power of taking up the gold is increased. It is customary to attribute this effect to a slight degree of warm dampness imparted to the hairs; but we have some reason to believe that the hairs become electrically excited by the friction, and then act attractively on so very light a substance as leaf gold. Hair is very excitable by friction, as is instanced by the well-known development of electricity when the hair on the back of a cat is rubbed from the tail towards the head. Sometimes the learner touches the hairs of his tip slightly with grease; but this is a bad practice, and should not be adopted.

When the gold is laid on, it is blown forcibly, to expel as much of the water as possible from beneath it,—the dry camel hair pencil being used to press down any little parts which fail to adhere. Another portion is then wetted, and another piece laid on,—lapping about an eighth of an inch over the end of the former piece. Thus the gilder proceeds—piece after piece—until the one lay is carried down the whole length of the moulding. By this time the upper end of the moulding has begun to dry, and he proceeds with another lay joining the former. In doing this he has to observe, that the water must be made to flow a little over the edge of the former lay, but not so as to wash it up, or break away the edge: the second lay must lap a little over the first, and therefore the water must likewise extend over the first lay.

Thus he proceeds with all the lays into which he has found it necessary to divide the width of the moulding,—every piece, lengthwise, lapping over the piece previously put on, and every lay lapping over the previous lay. The moulding is then set aside to dry.

There is a particular state or degree of dryness, known only by experience, in which the moulding is in a fit state for *burnishing*. A large share of the elegance which a gilt picture frame presents, is due to the judicious admixture of *burnish* and *matt* (or dead) gold; and the gilder determines what members of the moulding shall be burnished. The burnishers used by the gilder are either of flint or agate, generally the former: the steel burnishers employed by the jeweller would not do for the gilder. It frequently excites surprise that the burnisher can be rubbed briskly over the gold without injuring the latter, or rubbing it off. The reason seems to be, that the whiting and gold-size under the gold form a yielding foundation into which the gold is pressed more firmly by the burnisher, and that the brilliancy attained is derived from the levelling of the little asperities in the gold and the gold-size beneath it. If gold were laid on wood, or even on whiting, it will not receive a burnish.

The manner of handling the burnisher cannot be described, but is acquired gradually by the learner. Burnishers of different form and sizes must be employed, in order to adapt them to the part of the work which is being burnished: some are sharp at the end, some flat, and others round; but they are generally crooked or curved near the end.

When the burnishing is done, those parts which have not been burnished are *weak-sized*; that is, they are wetted with water in which a very little clear piece of size has been melted: this helps to secure the gold. When dry, the gold is wiped carefully with a piece of soft cotton wool, to remove rough or ragged edges of gold; and there are now visible a number of little breaks, holes, and faulty places in the gilding, arising from the impossibility of laying on the gold quite soundly and perfectly. These de-

fective parts are repaired by the process of *faulting*, which consists of cutting up a leaf of gold into small pieces, and laying them on the faulty places (previously wetted) with a camel hair pencil. If the defective part be on the burnish, it is necessary to be careful not to wet any part but what is to be covered by the gold, since it will act as a sort of stain to the burnished gold.

When the faulting is dry, the gold is again carefully wiped, and finally wetted with *finishing size*. This is clear size of a certain degree of strength, laid on the matt parts with a pencil; and completes the process of gilding.

The moulding now passes into the hands of the frame maker, to be joined, which is effected in the manner before described. After which the gilder has to stop up with putty the nail holes which the joiner makes, and to paint the outside yellow, for it seldom happens that the entire outside is gilt. The yellow employed for this purpose, is generally stone ochre, mixed up with melted size to a thick consistency, and then laid on with a brush.

As a completion to the frame, small light ornaments are sometimes laid on the corners,—the frame and the ornaments being previously gilt. The ornaments are made of composition, and are fixed on with a weak glue.

We have here completed a plain picture frame, such as is generally employed for prints and drawings. We must now take in hand a richly ornamented frame for an oil painting, in which many of the processes are very different.

The moulding is, in this case, whitened and smoothed in exactly the same manner as the former; but it then passes into the hands of the joiner, before any farther substance is laid on. The joiner joins it up properly to the required size; and from him it

passes to the composition ornament maker, who decorates it with much or little ornament, according to circumstances. The groundwork of the frame which is visible between the ornaments is sometimes quite plain, and at other times it is *crooked* or *chequered*. This consists in scratching a kind of net-work or trellis-work all over a particular member of the moulding, by means of a sharp tool called a *crook*: this is done before the ornaments are put on.

When the gilder receives the frame from the ornament maker, his first care is to wash the ornaments, in order to remove the slight coating of oil which is generally received from the mould by the cast. He then gives the whole frame two or three coatings of very thin white, in which a little clay, of a peculiarly mellow texture, has been mixed. Two coats of this will be sufficient, if the frame is to be gilt wholly in *oil-gold*; but if certain parts of the ornaments are to be burnished, they must receive an additional number of coats of whiting a little thicker than that just described; but it must be perfectly smooth and free from lumps. Sometimes the outer edge of a rich frame is cut out into an elegant curved form; in this case, as the wood is laid bare beneath the whiting, it is necessary to give an additional quantity of whiting to those parts, which, as well as those parts of the ornaments which are to be burnished, must then be smoothed and brought quite level.

The frame is now ready for *clear-cole*. This is moderately strong size laid on with a brush while warm; and if the size has begun to spoil or to *run*, as it is termed (which, being an animal substance, will occur in more or less time), it is considered to make better clear-cole. Two or three coats of this clear-cole are laid on, until a glossy surface is produced, the object of which is to prevent the oil gold-

size (next to be described) from being absorbed by the whiting underneath.

Oil gold-size is a mixture of ochre and boiled linseed oil, ground up together with extreme care, so that every trace of granular or gritty particles is removed, and the preparation of which requires much time and attention. It is purchased in a state too solid for use, and is therefore thinned with boiled linseed oil to a consistency which experience has shewn to be best fitted for the purpose. This oil gold-size is laid on the clear-coled frame with a brush, as thinly as possible, and with every attention to smoothness of surface.

It is customary to oil gold-size a frame in the evening, just before leaving work; and on coming to work the next morning, the oil gold-size is found to have a peculiar degree of stickiness—between wetness and dryness—which is favourable for the reception of the gold. In the height of summer, this number of hours is frequently found to be too much, as the oil gold-size becomes too dry. In this case, the frame is “put in oil,” as it is termed, early in the morning, and dries in from four to ten hours, according to circumstances.

When ready for gilding, the gold is laid on with the tip, as before described. But there are many points of difference between the two sorts of gilding. Instead of wetting the frame with water, the partially-dried oil gold-size serves the same object; and, instead of regulating the widths of the strips of gold according to the parts of the moulding or of the ornament, the leaf is generally cut into two or three pieces, and laid on with less precision than in burnish gilding. Where the ornaments are very deep, the same part is gilt two or three times over, and the gold pressed in with cotton occasionally.

When the frame is sufficiently covered with gold, it presents a singularly ragged and unfinished appear-

ance; none of the deep parts are thoroughly gilt; some of the raised parts have two or three coatings of gold on them; and the ragged edges of the sheets of gold are visible in every part. The magic wand which sets all this seeming confusion into order and symmetry, is merely a brush, midway between a whiting brush and a camel-hair brush as to softness. This is worked carefully over every part of the frame, removing superfluous gold from some parts, and working it in at other parts, taking additional pieces of gold from the cushion as they may be wanted. By this means, the oil gold-size becomes entirely covered with a smooth surface of gold, and all irregularities disappear. It may well be supposed that to effect all this without disturbing the oil gold-size, and without scratching the parts already gilt, requires good gold-size,—extreme thinness in the coat laid on,—a particular degree of dryness when gilt,—and a delicate mode of handling the brush. This process is called *skewing*, and the little particles of gold which may be left are collected by the gilder, and sold by him, as a perquisite, under the name of *skewings*.

When the frame is skewed, it is well dusted with a soft brush, and then sized with clear size, such as is used in burnish gilding. Sometimes a little ormolu is put into the size, if it be desired to impart a deeper tint to the gold. The frame is then finished by yellowing the outside, as before described.

If any parts of the frame are to be gilt in burnish gold, the clear-cole and the oil gold-size must be kept carefully away from those parts, and burnish gold-size, together with the subsequent processes of burnish gilding, applied in their stead.

When a *glass frame* is to be gilt, the joiner's work is generally quite completed before the gilder begins his department; and great care is required in whiting such frames, to prevent filling up the corners with

whiting, and giving them a clumsy appearance. For this purpose, modelling tools, such as chisels, gouges, crooks, &c., are used, to clear out the corners from time to time, and preserve, as far as is possible, the original sharpness and clearness of the several parts.

Elaborately-carved frames require a great deal of care in the preparation for gilding; since sufficient whiting must be laid on to produce a brilliant burnish, while, at the same time, the sharpness and clearness of the ornaments must not be lost by a careless overloading with whiting. Small and neat brushes are necessary in this part of the business; and the process of smoothing, instead of being effected wholly by pieces of stone, is done generally by seal's skin, Dutch rush, and pieces of linen cloth.

When deep ornaments are to be gilt in burnish gold, it would be next to an impossibility to get the gold into all the intricate depressions of the ornaments, however small may be the pieces of gold laid on. It is, therefore, usual to give the ornaments a coating of thin smooth yellow, after the process of smoothing, but before that of gold-sizing. The gold-size (which is of a chocolate colour) is, in this case, not carried down to the bottom of the ornaments; in order that the yellow may appear, in case the gold fails to reach the deepest parts of the ornament; and thus be less conspicuous than if the brown colour of the gold-size should be visible.

*Window cornices* are, in most cases, treated precisely in the same way as ornamented picture frames. The wood-work is properly made and put together by the joiner: the gilder then gives the necessary quantity of whiting, and follows it up by smoothing: the composition ornament maker next decorates it with ornament, and cuts out the frieze into arches, &c.: and, lastly, the gilder takes it in hand, and proceeds regularly with it until it is quite completed,—

oil and burnish gilding being, in general, interspersed among one another.

The gilt borderings to go round rooms are prepared much in the same way as plain burnish-gilt picture frames; except that, being free from mitred corners and from delicate sharp edges, they are prepared and gilt with greater ease and quickness than frames.

Plaster figures are frequently gilt and placed on pedestals, brackets, &c. In such cases, as the material of which they are composed is a species of whiting, a much smaller quantity of whiting and size is laid on the figures than would be necessary if they were made of wood.

In some of the glass frames with cornices, and also in mirrors, which, like the former, are now almost out of use, there was frequently a row of burnish-gilt balls, from half an inch to an inch and a half in diameter, running along the cornice of the glass frame (as in Fig. 3, p. 24) and round the mirror frame. These balls were generally turned in wood, and had a wire inserted in each. In order to prepare and gild these balls, they were held by the wires; but in the operation of burnishing, it was necessary to hold them in a vice.

The gilder has frequently to regild old frames, mouldings, window cornices, &c. Now, the dust, smoke, and grease, to which these articles may have been exposed, would but ill prepare them for a new coating of gold; while, on the other hand, it is not found necessary to remove the whole of the preparation which may have been laid on the original wood-work. The general plan is to wash off the gold, and a portion of the gold-size which is beneath it. If there be any holes or bruises, these are stopped with putty; and new gold-size is laid on, as in the case of new work; after which, the process of gilding is carried on. This is the case when the frame has been gilt in burnish gold. But when it has been gilt in oil gold,

the old gold cannot be washed off, since it adheres too firmly to the gold-size beneath. All that is necessary in this case is to wash the old gold clean, in order to prepare it for subsequent processes.

Frames, plaster figures, tripods, &c., are sometimes covered with leaf silver instead of leaf gold. The silver, for this purpose, is beaten in the same manner as gold; but it cannot be made so thin as gold without breaking. It is made in sheets about four inches square, and is laid on in the same manner as gold.

The process of gilding is a very pleasing one, and appears to be easy in the eyes of a spectator, from the light and simple manner in which the tools are used. But this ease is only apparent: many months elapse before an apprentice can master the numberless little difficulties which occur in every part of the process. We may here observe, that in burnishing parts of the ornaments of a frame, the other parts of which are gilt in oil gold, it is essential to guard against touching the oil gilt portions with the burnisher, since, instead of producing a brilliant burnish, it will rub off the gold and a portion of the oil gold-size beneath it.

It is always valuable to a carver and gilder to possess some knowledge of pictures,—the style of different artists,—the permanence or the perishable nature of different colours,—and the modes of removing grease, dirt, smoke, varnish, &c., without injuring the picture. It is often required or desired that a gilder should be able to clean or varnish a picture, the frame of which he is either making or regilding. A natural taste for the fine arts is, in the first instance, necessary before a man can acquire much knowledge of pictures: where this taste exists, a practical acquaintance with pictures will do much more than reading in supplying what else is necessary: where the taste does not exist, no great progress can be made in these matters.

There are many other processes in which the carver and gilder is engaged, but they appertain more to him as a frame-maker generally than as a mere gilder. We will mention two or three of these items.

When a print is to be framed, it is usual to paste it on a stretched canvas or calico. The calico is first nailed tightly to a wooden strainer, and the print is pasted down upon the calico. If the paper be very thick, it may be necessary to moisten it with a sponge and water, before the paste is applied; but if it be thin, paste alone will be sufficient. Great care is necessary in expelling all air-bubbles from between the paper and the calico, by gently pressing it in every part with a soft clean cloth.

Prints and drawings are, in most cases, covered with a glass when framed, to preserve them from injury. This glass is generally a superior kind of window glass, but is sometimes plate glass: in either case, it is to be fastened into a groove or rebate in the back of the frame with slips of pasted paper. If the print is stretched on canvas, it is not necessary to have a board behind the canvas,—a sheet of paper pasted over it being sufficient; but if the print is not pasted upon canvas, but laid down simply on the glass, a thin smooth backboard is necessary;—the glass, the print, and the backboard, being all fixed into the groove or rebate. A slip of paper is then pasted round the edges of the board, to prevent the entrance of dust, &c.

In fitting up a looking-glass, it is necessary to observe great caution, to prevent any quicksilver from the glass touching the gold on the frame, as it instantly eats through and destroys the gold. When a silvered glass is laid in the rebate of the frame, it is secured by small blocks or stops of wood, which are glued at intervals round the frame. These blocks are cut so as to have one side to hang over and press

upon the edge of the glass. The glass is then covered either by a board or by paper, to protect the quicksilver from injury. When the glass is very large, it is protected at the back by a stout wooden panelled frame, called a *blind* frame. It may here be remarked, that in glueing in the blocks which secure the glass into its frame, it is necessary to guard against letting a drop of glue fall on the quicksilver, as it is very likely to take it from the glass.

We may now say a few words respecting the mode in which an apprentice to a Carver and Gilder learns his business, and on the amount of wages earned by a journeyman.

The principal work on which an apprentice to a carver and gilder is employed, during the early portion of his apprenticeship, is whiting frames and mouldings, preparatory to gilding. We have said that new frames require a great many coats of whiting before they are in a fit condition to be gilt; and this is a portion of the work which generally devolves upon apprentices. The size with which the whiting is mixed is melted in an earthen pan, and the powdered whiting is thrown in and well mixed up with it. Attention is required in melting the size, to prevent it from becoming too hot; as the whiting, when mixed, should be warm enough to work freely in the brush, but should not be hot; since this gives a blistered and rough appearance to the whiting. The proper degree of warmth can be learned only by practice.

The preparation of the size is another part of the apprentice's occupation. The parchment cuttings which are used for that purpose must be well washed before they are boiled, to free them from a portion of their grease, &c. The quantity of water to be added to a certain quantity of parchment, and the time that it must boil, depends on the purpose to which the

size is to be applied, as some processes require stronger size than others. Of course, the longer time the parchment boils, the stronger will the size become.

The balls of whiting, as they are sold by the maker, must be pounded before they can be mixed with size. This also devolves on the apprentice, who effects it either by rolling or sifting. If rolled, he has a large flat board with a raised edge, and a roller two or three inches in diameter, with which he works the whiting until it is reduced to a fine powder: the more nearly it approaches to the fineness of flour, the better will it answer the gilder's purpose. Sometimes the whiting, in the state of balls, is rubbed against the iron wires of a sieve, by which it is reduced to a powder, which falls through the meshes of the sieve.

When a frame has received a sufficient coating of whiting, the process of smoothing, which it then undergoes, requires some care, and cannot be done by the apprentice without some previous practice on the easier parts, such as large surfaces; he therefore leaves the more difficult and elaborate mouldings until he has attained a greater degree of proficiency.

Most of the ingredients used by the gilder are applied to the work in a warm state, the liquid body consisting, in most cases, of melted size. The mixing of these materials, such as whiting (both thick and thin), burnish gold-size, clay, yellow, &c., may very conveniently be given to an apprentice to perform, since the time of a more experienced, and therefore a more valuable, hand is thereby saved. A considerable number of earthen pots and pipkins are required, in which to mix these ingredients; and the pots must be washed out by the apprentice as soon as the contents are used; or, in some shops, it is customary to collect together, just before leaving work in the evening, all the pots and pans which may be empty but

dirty, and put them into a large tub or pan, and cover them with water. In the morning, the crust of dry whiting, &c., which adhered to the pans, is softened and loosened, and a knife will soon scrape it all off. The apprentice should see that the workmen are never without clean pans for the progress of their work.

We may here remark that the apprentice should guard against making his work *hot* in the process of drying. A new coating of whiting or other substance should never be laid on a frame until the previous coats are dry; but the anxiety to have that drying effected should never lead the apprentice to place his work so near a fire as to become hot; as the whiting is very liable, under such circumstances, to blister and peel off.

A considerable time usually elapses before an apprentice engages in gilding, he being employed on the preparatory parts of the work. Sometimes he commences with what may be called the lighter parts of the art, by *burnishing* those parts which a more experienced hand has gilt: this gradually accustoms him to a more delicate mode of holding and using his tools, than is necessary in whiting, &c. His first essay with the gilding-cushion is generally a momentous affair; for he often blows the gold out of his cushion in the mere act of breathing; and in blowing the gold out of the gold-book into the cushion, he is very apt to give a blast which sends it much farther than he intended. All this will, however, be corrected by attention and practice.

With respect to the earnings of a carver and gilder, we may observe that they are very varied. There are in London three trade societies or trade unions, one of which has, until a recent period, fixed the minimum of wages at 34s. per week, and forbidden its members to work for less. The others have generally been

willing to take 30s.; and, we believe, it is now pretty generally agreed that 30s. shall be the standard of wages. The large amount of gilding executed for the palaces belonging to King George the Fourth rendered it necessary to bring additional workmen from Edinburgh, Dublin, and Paris. These additional hands have remained in London, and since that time the supply of labour has been greater than the demand,—a sure forerunner of a diminution of wages.

It is only in the best houses that a regular salary of 30s. a-week can be obtained throughout the year,—some hands being engaged as low as 21s. There are in this business a great number of workmen who are neither masters nor journeymen, but occupy a medium position between the two. These are the “chamber masters,”—that is, men who work for the trade, but do the work at their own houses, instead of at the houses of their employers. This mode of doing business has largely increased within a few years.

There is so much which an apprentice can do in this business, that the system of taking apprentices, instead of hiring journeymen, has been carried to a considerable extent. This often operates unfavourably upon a journeyman who has already learned his business, unless he happen to be so skilful as to be always able to command employment.

A carver and gilder is, generally speaking, pretty well occupied throughout the year; the two busiest periods being in the spring, when frames for the Exhibitions of Pictures are required, and in autumn, when houses are undergoing repair.

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We have thus given a brief account of the nature of the employments which are sometimes supposed to be combined in the trade of a Carver and Gilder; and although this supposition is incorrect, yet there is a

certain link which binds one to another. If, therefore, a parent contemplates apprenticing his son to a carver and gilder, or if an intelligent boy, fresh from school, thinks that he should like to be a carver and gilder, because it seems to be such a pretty business, it would be desirable to know how many different trades are concerned in the immediate production of a frame for a glass or a picture. Disagreements have frequently arisen between masters and parents, in consequence of the parent, through ignorance of the nature of the business, having expected the master to teach an apprentice more than he is really able to teach him.

Supposing, however, an apprentice to have entered on his engagement, we would earnestly advise him to devote those hours, when he is not engaged in the shop, to something that will advance his future progress. There are many parts of the business in which taste and elegance are frequently called for; and if he can shew specimens of them, his future advancement is sure to be aided. For example, the writer of this little book reaped both pleasure and profit by joining the London Mechanics' Institution some years ago. That excellent Institution contains classes for instruction in Modelling, Practical Geometry, Drawing, &c., all of which would in various ways assist the apprentice. Most of our great towns contain similar Institutions; and the Apprentice, after the usual hour of leaving work, might, for a small expense, learn much that would conduce both to his moral and his worldly welfare.

#### THE END.

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